REMARKS

Applicants respectfully request further examination and reconsideration in view of the above amendments and arguments set forth fully below. Claims 1 through 75 and 94 through 109, were previously pending in the instant application. Within the Office Action, Claims 1 through 75 and 94 through 109 have been rejected. By way of the above amendments Claims 1, 3, 4, 14,48, 50, 51, 61, 94, 95, 96 and 105 have been amended. Accordingly, Claims 1 through 75 and 94 through 109 are now pending in this application.

Objection to Drawings:

The drawings have been objected to because they contain unevenly/improperly shaded areas (elements 101 and 104 in Figure 1A; elements 201 and 204 in Figure 2; elements 302 and 303 in Figure 3A; elements 301 and 302 in Figure 3B). By way of the annotated and replacement drawings, the drawings are now in compliance and the submitted replacement sheets and annotated sheets are in compliance with 37 C.F.R. 1.121(d).

The drawings have been objected to under 37 C.F.R. 1.83(a) for failing to show every feature of the claimed invention. Specifically, it is stated within the Office Action that the features of:

- micropillars, as in Claims 13, 17, 60 through 64;
- micropillars comprising a plurality of pins, as in Claims 14-16, 61-63, and 106-108;
- interwoven manifolds, as in Claims 31, 32, and 34; and
- a plurality of individualized holes, as in Claim 32 and 35

are not shown in the drawings.

The micropillars as called out in Claims 13, 17, 60 through 64 are disclosed in replacement sheet 2, Figure 1B, elements 20 and 22. These elements are supported in the specification on page 9, lines 5-13.

The micropillars comprising a plurality of pins as called out in Claims 14-16, 61-63, and 106-108 are disclosed in replacement sheet 2, Figure 1B, element 20. These elements are supported in the specification on page 9, lines 13-14.

The interwoven manifolds are disclosed in Replacement Sheet 3, Figure 3A, element 304' and 305'. The multiple fluid paths 304' and interleaved with the multiple fluid paths 305', with the fluid path connected through the micro-scaled region 303, thus forming an interwoven manifold.

The plurality of individualized holes are shown in Figure 3B by elements 304 and 305. Element 305 in Figure 3B shows a plurality of outlets from the device.

Objection to the Specification:

Within the Office Action, the Abstract disclosure is objected to because it does not avoid terminology reserved for the patent claims. The abstract has been amended to correct the objected to terminology.

Objection to Claims:

The base claims 1, 48, and 94 are objected to because of the infomalities that the number of the corresponding to the limitations in the body of each of these claims. The base claims 1, 48, and 94 have been modified to overcome this objection.

Rejections Under 35 U.S.C. § 112

Within the Office Action, Claims 1 through 75 and 94 through 109 are rejected as failing to define the invention in the manner required by 35 U.S.C. 112, second paragraph. Specifically, "the heat source" in Claim 1 and 3 is not positively recited as an element encompassed by the scope of the claims. In Claim 4, 51, and 96 "the dimension of the overhang" is not positively recited. In Claim 95, 96, 97, and 105 "the spreader region" and "the micro-scaled region" is not positively recited. Claims 1, 4, 51, 94 and 96 have been amended so that the elements are positively recited in Claims 1, 3, 4, 51, 95, 96, 97, and 105. Accordingly, the claimed elements should now be positively recited for these claims.

Within the Office Action, Claims 3, 50, and 95 have been objected to as not being clear whether the limitation "wherein the spreader region and the micro-scaled region are wider than

the heat source." Amendments to Claims 3, 50, and 95 make clear the limitation being claimed. Accordingly, it should now be clear what limitations are being claimed.

Within the Office Action, Claims 14, 61, and 106 have been objected to as not being clear of the limitation "(10 microns)2 and (100 microns)2." Amendments to Claims 14, 61, and 106 make this limitations clear. Accordingly, it should now be clear what limitations are being claimed.

Rejections Under 35 U.S.C. § 102(e)

Within the Office Action, Claims 1, 5, 9, 13, 14, 17, 20-23, 25, 29-50, 52, 56, 60, 64-67, 71, 72, 94, 95, 97, and 109 have been rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,942,018 to Goodson el al. (hereafter "Goodson").

Goodson discloses a micro heat exchanger (Figure 1, 200; Column 7, lines 17-19) attached to a heat producing device (Fig. 1, 50; column 7, line 19). Goodson teaches the micro heat exchanger being coupled directly to the heat producing device (Fig. 1, 50; column 7, lines 31-33). Goodson does not teach a spreader coupled between the heat source 50 and the micro heat exchanger 200 (Applicant Claim 1). Goodson does not teach a spreader that is wider than the heat source (Applicant Claim 3, 4, 50, 51, 67, 95, and 96). Goodson does not teach a micro channel heat exchanger with micro-porous structure (Applicant Claim 9, 10, 11, 12, 17, 56, 57, 58, 59, 64, 101, 102, 103, 104, and 109).

The pending patent application claims a micro-scaled region configure so that fluid can flow though the micro-scaled region. Additionally, that application claims a spreader between the heat source and the micro-scaled region (Claim 1). The beneficial purpose of a spreader is that a more even flow of heat over the surface of the heat source can be achieved and thus reduce the thermal stress on the heat source. The pending patent application claims teaches a spreader and micro-scaled region wider than the heat source. This structure has the advantage that the heat from the heat source is spread to a larger area and thus to a larger area for fluid contact within the micro-scaled region. This has the advantage of reducing the average temperature at the interface with the fluid and thus reduces the likelihood that the fluid will boil. A boiling fluid creates back pressure for the pump and does not conduct heat as efficiently as a fluid. Thus, such a structure can operate with higher temperature heat sources. The pending patent application claims a mico-porous structure as part of the micro-scaled region which is not taught

In contrast to Goodson, the present application claims structural elements not taught in

Goodson. The spreader structure is not found in Goodson. A spreader and micro-scaled region with a greater width than the heat source is not found in Goodson. Further, Goodson does not teach a micro-scaled region with a micro-porous structure. Accordingly, claims 1, 5, 9, 13, 14, 17, 20-23, 25, 29-50, 52, 56, 60, 64-67, 71, 72, 94, 95, 97, and 109 claim a structural element not taught by Goodson

Rejections Under 35 U.S.C. § 103(a)

Within the Office Action, Claims 2-4, 6-8, 10-12, 15, 16, 18, 19, 24, 26-28, 51, 53-55, 61-63, 68-70, 96, 98, and 108 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,942,018 to Goodson el al. (hereafter "Goodson").

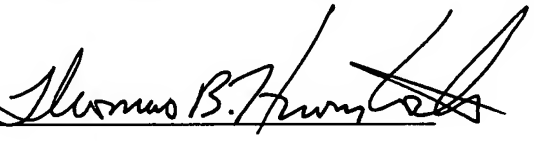
For the reasons argued in above, the independent claims 1, 48, and 94, are in a condition of allowance. Claims 2-4, 6-8, 10-12, 15, 16, 18, 19, 24, 26-28, 51, 53-55, 61-63, 68-70, 96, 98, and 108 are dependent from allowable base claims. Thus, these claims are allowable as being dependent from an allowable base claim.

For the reasons given above, the Applicants respectfully submit that the claims are in a condition for allowance, and allowance at an early date would be appreciated. Should the Examiner have any questions or comments, the Examiner is encouraged to call the undersigned at (408) 530-9700 to discuss the same so that any outstanding issues can be expeditiously resolved.

Respectfully submitted,

HAVERSTOCK & OWENS LLP

Dated: 10-5-07

By 

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